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AUTHOR McDowell, Earl E.  
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## ABSTRACT

This study summarizes courses and programs in scientific and technical communication during the past 20 years. The results show that there has been a rapid increase in the number of courses and programs offered at two-year and four-year colleges and universities, as well as a 500% increase in the number of schools offering courses. The results reveal that 36 states have courses, certificates, and/or degree programs in scientific and technical communication. In addition, there has been a rapid increase in the number of higher education institutions offering courses in World Wide Web and online courses. The results are discussed in this paper. (Author/RS)

**A Curricular Profile of United States  
Technical Communication Departments at the  
Beginning of the 21st Century**

Earl E. McDowell

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**Department of Rhetoric  
University of Minnesota  
92 Classroom Office Building  
St. Paul, MN 55108**

A Curricular Profile of United States Technical Communication Departments  
At the Beginning of the 21st Century

Earl E. McDowell  
Department of Rhetoric  
University of Minnesota  
92 Classroom Office Building  
St. Paul, MN 55108

Abstract

This study summarizes courses and programs in scientific and technical communication during the past 20 years. The results show that there has been a rapid increase in the number of courses and programs offered at two-year and four-year colleges and universities, as well as a 500% increase in the number of schools offering courses. The results reveal that 36 states have courses, certificates and/or degree programs in scientific and technical communication. In addition, there has been a rapid increase in the number of higher education institutions offering courses in World Wide Web and on-line courses. The results are discussed in this paper.

Early research by Gould, 1974, asked alumni of the master's program at Rensselaer Polytechnic Institute several open-ended questions to determine the curriculum needs of future graduate students. Writing and editing skills were the two areas mentioned most frequently. In 1980, McDowell, Schuelke and Chung asked that alumni, potential employers, and members of Twin Cities Chapter of the Society of Technical Communication to rate the courses in the scientific and technical communication program at the University of Minnesota in terms of their level of importance to prepare students for future employment as technical writer/communicators. The results indicated that courses in writing, editing, and oral communication were rated as the most important ones in the bachelor's program. Other studies have compared degree programs. A study by Storm, 1984, distinguished between bachelor's and the master's degree programs in the following way:

Courses offered at the graduate level typically require more work and treat more sophisticated concepts than undergraduate courses in the same areas. Moreover master's programs . . . often emphasize communication theory more than undergraduate programs.

In addition, Barchilon, 1988, reported in the Journal of the Society of Technical Communication that eighteen universities offer master's degrees in technical Communication. She also reported the number of credit hours needed to complete the degree, and the departments from which the degrees were granted. Likewise, in 1989 Wahlstrom concluded:

Just ten years ago no institution had a comprehensive Graduate program in STC. Today fewer than a score of Universities have had more than a decade of experiences offering technical communication or technical writing programs even at the undergraduate level. In 1986-87, however, more than sixty schools were positioning themselves to take advantage of the market demands for STC.

In 1990, McDowell designed, revised and executed three q-sort studies to explore educators' and professional writers' perceptions of the curriculum needs of undergraduate and graduate technical communication students. Specifically the researcher asked directors of undergraduate and graduate programs in scientific and technical communication to send copies of their courses and course descriptions. A panel of technical communication teachers identified 48 distinct courses and descriptions for both undergraduate and graduate programs. A random sample of 300 members of the Association of Teachers of Technical Writers were asked to sort 48 undergraduate courses into 11 categories from most important to least important. The same procedures were followed with another random sample of 300 members of the Association of Teachers of Technical Writers. In this study 50 percent (150 participants) were asked to sort courses in terms of level of importance for students who had completed an undergraduate degree in technical communication or a related discipline and then to sort the courses for students who are entering a new academic area. The other 50 percent (150 participants) completed the two sorting in the opposite order. Both groups completed two q-sorts.

The results revealed that technical writing, editing, document design, and graphic courses were important for undergraduate students and for graduate students with an undergraduate degree in an unrelated discipline. In contrast, publication management, document design, testing documents, computer system documentation, instructional materials, and graphic design courses were the most important for graduate students with an undergraduate degree in technical communication and or related discipline

The lowest rated courses were creative writing, rhetorical theory, photography, transfer of technology, studies in organizational communication for both undergraduate and graduate degree programs.

## **Purpose**

The primary purpose of the present study is to explore websites to determine the present curriculum offerings of colleges/universities offering courses, certificates and/or degrees in scientific and technical communication. The investigator sought answers to the following questions:

1. What scientific and technical communication courses are offered by colleges/universities in the United States?
2. How many States offer courses in scientific and technical communication?
3. What percent of courses/programs are offered in each State?
4. What is the curricular profile of courses in scientific and technical communication?

## **Method**

The researcher obtained a list of colleges and universities offering scientific and technical communication courses by checking website <http://www.stc-va.org/scripts.school>. Next 100 of the college/university websites in the United States were searched to discover the scientific and technical communication courses that were listed. The investigation found the websites for 60 of the 100 colleges/universities (60%). The information was downloaded and printed. Next cover letters were sent to the 60 colleges and universities requesting a hardcopy of courses, certificates and degree

programs.

## Results

Based on the STC website 148 of the colleges/universities are in the United States. I attempted to find 100 of the 148 websites. I found significant information for 60 of the websites. Tables 1 reports that 16 community colleges offer courses, certificates and/or associate degrees, while Table 2 shows 44 colleges and universities offer courses, certificates and/or bachelor degrees and/or master degrees. Table 3 provides the numbers and percentages of colleges and universities in the United States offering courses, certificates, and degrees in scientific and technical communication. The results indicate that 36 of the 50 states have courses and/or programs of some type of scientific and technical communication. Thirty-seven percent of the college/universities are located in California, Ohio, Texas, Illinois and New York. An additional 22 percent are located in Michigan, Pennsylvania, Massachusetts, Louisiana, Minnesota and Wisconsin. Sixty percent are located in the Northeast, Midwest or Northwest, while other areas have fewer programs.

The results, reported in Table 4, indicate that technical writing, technical editing, internships were offered by more than 40 percent of the programs. In addition, more than 20 percent offer courses in management communication, computer documentation, grammar and style, research in technical communication and advanced technical communication.

Courses in graphics, teaching document design, business writing, rhetorical theory and professional editing are offered by more than 10 percent of college and universities.

These courses, as well as others, will be discussed in the next section.

## DISCUSSION

In this study websites for 60 college/universities are explored to discover scientific and technical communication courses, certificates programs, and degree programs offered in their departments. The results reveal that technical writing, professional writing, technical editing, managerial communication, grammar and style are the same courses offered in scientific and technical communication programs 20 years ago. In contrast, courses in computer documentation have continued to grow in the last 20 years. Courses are now offered in on-line documentation, World Wide Web design, computer aided publishing, and writing for on-line presentations. Over 40 percent offer course in rhetorical theory. The courses range from classical rhetoric to modern rhetoric, technical editing, as well as human communication. The growth in courses in qualitative and quantitative research and teaching courses can be explained by an increase in the number of universities offering bachelor and master programs in scientific and technical communication. That is during the 1990s scientific and technical communication programs continued to develop. In 1999 Staples reported that there are over 220 programs across the United States and countless courses offered at every postsecondary level. Lay also reported the following:

Academic departments of technical communication have established themselves in American higher education. As a discipline, technical communication has the potential to provide a unique educational forum for diverse programs, for innovative research and curriculum, and for a wide base of theory, inquiry, and application.

In this study over 40 percent of the sample offer courses in technical editing.



Other results reveal that approximately 30 percent of the colleges and universities offer at least one computer documentation course and over 20 percent offer courses in qualitative and or quantitative research, including 5 courses in usability testing, while 6 percent offer international communication. Staples, 1999, indicated that these areas have become areas of specialization in the technical communication field. In addition, she concluded that technical editing, environmental writing or technical communication has or will become new areas of specialization in this study over 40 percent of the sample offer courses in technical editing.

The purpose of this study was to identify the types of courses being offered in scientific and technical communication programs as we enter the 21<sup>st</sup> century. Assuming the results are representative of the field, it will be interesting to track the changes during the 21<sup>st</sup> century.

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Table 1  
Two Year Colleges

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Community Colleges

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Austin Community College  
Austin Peabody State College  
Belleville Area College  
Burlington County College  
Clackamas Community College  
Cincinnati State Technical and  
Community College  
Edison Community College  
Gateway Technical College  
Nazareth College  
Pennsylvania College of Technology  
Lake County Community College  
Orange Coast College  
American River College  
Thomas Nelson Community college  
Washington State Community College  
Terra Community College

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Table 2  
Four Year Colleges

4-Year College
Bob Jones University
Baylor University
Boise State University
Bowling Green University
Brigham Young University
California State University of PA
Carnegie Mellon University
Cedarville College
Drexel University
East Carolina University
East Michigan University
East Washington University
Gannon College
George Mason University
Georgia Institute of Technology
Iowa State University
Louisiana Tech University
Michigan Technological University
Milwaukee School of Engineering
Missouri Western State College
Ohio University
Pittsburg State University
Portland State University
Purdue University--Calmet
San Francisco State University
Rensselaer Polytechnic Institute
Simmons College
Southern Polytechnic State University
Suny Institute of Technology
University of Arkansas
University of Maine
University of Maryland
University of Memphis
University of Michigan
University of Minnesota
University of South Florida
University of Tennessee-Chattanooga
University of Washington
Towson University
Weber State University
Western Washington University
Wright State University
Texas A&M University
Texas Tech University

Table 3

Colleges and Universities Offering Scientific  
And Technical Communication Courses

Rank	State	Current Offerings
	California	19 (12.8%)
	Ohio	11 (7.4 %)
	Texas	10 (6.7 %)
	Illinois	8 (5.4%)
	New York	7 (5 %)
	Michigan	6 (4 %)
	Pennsylvania	6 (4 %)
	Massachusetts	5 (3.3%)
	Louisiana	5 (3.3%)
	Minnesota	5 (3.3%)
	Wisconsin	5 (3.3%)
	Tennessee	4 (2.7%)
	Utah	4 (2.7%)
	Oregon	4 (2.7%)
	Washington	4 (2.7%)
	Colorado	4 (2.7%)
	Maryland	4 (2.7%)
	Florida	3 (2 %)
	Georgia	3 (2 %)
	Mississippi	3 (2 %)
	North Carolina	3 (2 %)
	Indiana	2 (1.3%)
	Arkansas	2 (1.3%)
	Oklahoma	2 (1.3%)
	New Mexico	2 (1.3%)
	Montana	2 (1.3%)
	Kansas	2 (1.3%)
	Virginia	2 (1.3%)
	South Carolina	2 (1.3%)
	Idaho	1 (.6%)
	West Virginia	1 (.6%)
	New Jersey	1 (.6%)
	Iowa	1 (.6%)
	Kentucky	1 (.6%)
	Maine	1 (.6%)
	Delaware	1 (.6%)

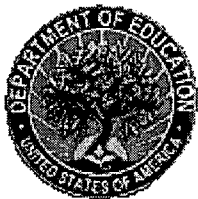
Table 4

## Scientific and Technical Communication Course Offerings

Rank	Course	Current Offerings
1	Technical Writing	40 (66.7%)
2	Technical Editing	25 (41.7%)
3	Internships	24 (40%)
4	Management Communication	22 (35%)
5	Computer Documentation	17 (28.3%)
6	Grammar and Style	15 (25%)
7	Research in Tech. Comm	13 (21.7%)
8	Advanced Technical Writing	11 (18%)
9	Graphics	11 (18%)
10	Teaching	10 (16.7%)
11	Document Design	10 (16.7%)
12	Desktop Publishing	10 (16.7%)
13	Business Writing	9 (15.4%)
14	Rhetorical Theory	8 (13.3%)
15	Professional Editing	6 (10%)
16	Report Writing	5 (8.3%)
17	Grant Writing	4 (6.6%)
18	Principles of Communication	3 (5%)
19	Portfolio	3 (5%)
20	Interpersonal Communication	3 (5%)
21	Interviewing	3 (5%)
22	Technical Manuals	3 (5%)
23	Public Relations	2 (3.3%)
24	Theories of Composition	2 (3.3%)

Earl E. McDowell, professor of scientific and technical communication at the University of Minnesota, completed his Ph.D. in speech communication at the University of Nebraska in 1974. He has directed the undergraduate and graduate programs in the Department of Rhetoric and has published over 100 articles and two books in technical communication. His book, **Interviewing Practices for Technical Writers**, received an Excellent Award from the New York Chapter of STC in 1993. He teaches courses in research design,, interviewing, and organizational communication.

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Signature: <u>Earl E. McDowell</u>	Printed Name/Position/Title: <u>Earl E. McDowell, Professor</u>	
Organization/Address: <u>920 B</u> <u>University of Minnesota</u> <u>St. Paul, MN 55108</u>	Telephone: <u>612-624-3657</u>	Fax:
	E-mail Address: <u>mcdoew@du.mn.edu</u>	Date: <u>Feb. 18, 2002</u>